

What is claimed is:

1. A monitoring device for an injection molding machine in which a metering process is performed by retraction of a screw by rotating the screw to knead resin in an injection cylinder while controlling temperature of the injection cylinder heated by a heater to be a set temperature, said monitoring device comprising:

detecting means for detecting a rate of heat generation per unit time by the heater in the metering process;

storing means for storing the rate of heat generation by the heater with elapsing time in the metering process; and

display means for displaying the stored rate of heat generation by the heater with the elapsing time in the metering process in a form of a graph.

2. A monitoring device for an injection molding machine according to claim 1, wherein said detecting means detects the rate of heat generation by the heater based on ON time period of the heater per unit time.

3. A monitoring device for an injection molding machine according to claim 1, wherein said detecting means detects the rate of heat generation by the heater based on electric power supplied to the heater per unit time.

4. A monitoring device for an injection molding machine in which a metering process is performed by retraction of a screw by rotating the screw to knead resin in an injection cylinder while controlling temperature of the injection cylinder heated by a heater to coincide with a set temperature, said monitoring device comprising:

detecting means for detecting a rate of heat generation per unit time by the heater in the metering process;

storing means for storing the rate of heat generation by the heater with position of the screw in the metering process; and

display means for displaying the stored rate of heat generation by the heater with the position of the screw in the metering process in a form of graph.

5. A monitoring device for an injection molding machine according to claim 4, wherein said detecting means detects the rate of heat generation by the heater based on ON time period of the heater per unit time.

6. A monitoring device for an injection molding machine according to claim 4, wherein said detecting means detects the rate of heat generation by the heater based on electric power supplied to the heater per unit time.

7. A monitoring device for an injection molding machine in which a metering process is performed by retraction of a screw by rotating the screw to knead resin in an injection cylinder while controlling temperature of the injection cylinder heated by a heater to coincide with a set temperature, said monitoring device comprising:

detecting means for detecting a rate of heat generation per unit time by the heater in the metering process;

storing means for storing the rate of heat generation of the heater with elapsing time in the metering process;

setting means for setting an allowable range of the rate of heat generation by the heater in a determination section in the metering process; and

determination means for determining an abnormality of the metering process when the rate of heat generation by the heater deviates from the allowable range in the determination section.

8. A monitoring device for an injection molding machine according to

claim 7, wherein said setting means sets the determination section in terms of the elapsing time, and said determination means determines an abnormality of the metering if the rate of heat generation by the heater deviates from the allowable range in the determination section of the elapsing time.

9. A monitoring device for an injection molding machine according to claim 7, wherein said detecting means detects the rate of heat generation by the heater based on ON time period of the heater per unit time.

10. A monitoring device for an injection molding machine according to claim 7, wherein said detecting means detects the rate of heat generation by the heater based on electric power supplied to the heater per unit time.

11. A monitoring device for an injection molding machine in which a metering process is performed by retraction of a screw by rotating the screw to knead resin in an injection cylinder while controlling temperature of the injection cylinder heated by a heater to coincide with a set temperature, said monitoring device comprising:

detecting means for detecting a rate of heat generation per unit time by the heater in the metering process;

storing means for storing the rate of heat generation by the heater with position of the screw in the metering process;

setting means for setting an allowable range for the rate of heat generation by the heater in a determination section of the metering process; and

determining means for determining abnormality of metering if the rate of heat generation by the heater deviates from the allowable range in the determination section.

12. A monitoring device for an injection molding machine according

to claim 11, wherein said setting means sets the determination section in terms of screw position and said determining means determines an abnormality of metering if the rate of heat generation by the heater deviates from the allowable range in the determination section of the screw position.

13. A monitoring device for an injection molding machine according to claim 11, wherein said detecting means detects the rate of heat generation by the heater based on ON time period of the heater per unit time.

14. A monitoring device for an injection molding machine according to claim 11, wherein said detecting means detects the rate of heat generation by the heater based on electric power supplied to the heater per unit time.

15. A monitoring device for an injection molding machine in which a metering process is performed by retraction of a screw by rotating the screw to knead resin in an injection cylinder while controlling temperature of the injection cylinder heated by a heater, said monitoring device comprising:

detecting means for detecting a rate of heat generation per unit time by the heater in the metering process;

storing means for storing the rate of heat generation by the heater with elapsing time in the metering process;

calculation means for calculating an average value of the rate of heat generation by the heater in the metering process; and

setting means for setting an allowable range of the rate of heat generation by the heater;

determination means for determining an abnormality of metering if the average value of the rate of heat generation by the heater deviates from the allowable range.

16. A monitoring device for an injection molding machine according to claim 15, wherein said detecting means detects the rate of heat generation by the heater based on ON time period of the heater per unit time.

17. A monitoring device for an injection molding machine according to claim 15, wherein said detecting means detects the rate of heat generation by the heater based on electric power supplied to the heater per unit time.

18. A monitoring device for an injection molding machine in which a metering process is performed by retraction of a screw by rotating the screw to knead resin in an injection cylinder while controlling temperature of the injection cylinder heated by a heater, said monitoring device comprising:

detecting means for detecting a rate of heat generation per unit time by the heater in the metering process;

storing means for storing the rate of heat generation by the heater with position of the screw in the metering process;

calculation means for calculating an average value of the rate of heat generation by the heater in the metering process;

setting means for setting an allowable range of the rate of heat generation of the heater; and

determining means for determining an abnormality of metering if the average value of the rate of heat generation by the heater deviates from the allowable range.

19. A monitoring device for an injection molding machine according to claim 18, wherein said detecting means detects the rate of heat generation by the heater based on ON time period of the heater per unit time.

20. A monitoring device for an injection molding machine according

to claim 18, wherein said detecting means detects the rate of heat generation by the heater based on electric power supplied to the heater per unit time.